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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,502	11/08/2001	Jonathan R. Coppeta	1099us	2283
25263	7590	08/27/2004	EXAMINER	
J GRANT HOUSTON AXSUN TECHNOLOGIES INC 1 FORTUNE DRIVE BILLERICA, MA 01821			AHMED, SHAMIM	
			ART UNIT	PAPER NUMBER
			1765	

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/007,502	<b>Applicant(s)</b> COPPETA, JONATHAN R.	
	<b>Examiner</b> Shamim Ahmed	<b>Art Unit</b> 1765	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 1-15 in regards to the fact that Kane (4,524,127) does not teach dicing the substrate into optical elements and which have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-9,11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kane (4,524,127) in view of Hawkins et al (5,824,236) and further in view of Yoshida et al (5,500,869).

Kane discloses a process of making an optical element such as an array of lens on silicon substrate, wherein topographic features such as blind holes or V-grooves are formed on the silicon substrate and the substrate is chemically polished to alter the topographic profile to produce a curved optical surface such as lens (col.1, lines 45-52 and figures 1-6).

Kane remain silent about the polishing of the substrate surface is mechanical polishing.

However, in a method of forming lens array, Hawkins et al teach that lens material can be preferably polished by chemical mechanical polishing and also teach

that optically polished surface can be formed either by chemical etching/polishing or chemical mechanical polishing (col.8, lines 18-35).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to combine Hawkins et al's teaching into Kane's process by replacing chemical polishing with mechanical polishing such as chemical mechanical polishing because chemical polishing or etching and chemical mechanical polishing are functionally equivalent as taught by Hawkins et al.

Furthermore, mechanical polishing with the aid of chemical presence will increase the polishing rate than that of only chemical polishing and one of ordinary skilled in the art would have been motivated to do so.

Modified Kane remain silent about the dicing the substrate into optical elements.

However, in a method of making optical elements including lens array, Yoshida et al teach that after forming lens array on a silicon substrate, dicing the substrate in to individual optical devices (col.5, lines 32-35, col.7, lines 3-9 and col.8, lines 27-48).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of claimed invention to employ Yoshida et al's teaching of dicing the substrate into individual devices into modified Kane's process because such modified process will provide a plurality of devices at the same time by reducing the processing cost as taught by Yoshida et al.

As to claims 9 and 11-12, Kane teaches that after polishing the substrate, an optically coating such as antireflecting coating is formed on the polished surface (col.3, lines 49-51).

4. Claims 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kane (4,524,127) in view of Hawkins et al (5,824,236) and Yoshida et al (5,500,869) and further in view of Meyers et al (4,451,119).

Modified Kane discussed above in the paragraph 3 but fail to disclose the polished surface of the surface is coated with a highly reflective layer.

However, in a method of making mirrors, Meyers et al teach that a highly reflective layer is conventionally deposited on a polished surface in order to make mirrors (col.5, lines 45-65 and col.6, lines 1-6).

Therefore, it would have been obvious to one ordinary skilled in the art at the time of claimed invention to combine Meyers et al's teaching into modified Kane's teaching in order to make quality mirrors with high reflectivity as taught by Meyers et al.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Busta (4,744,246) teaches several hundreds of sensors are formed in a single silicon substrate and dicing the silicon substrate into individual sensors 9col.2, lines 7-11).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G Norton can be reached on (571) 272-1465. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shamim Ahmed  
Examiner  
Art Unit 1765

Sa  
August 23, 2004